

Notice of Allowability

Application No.

10/053,341

Examiner

Dah-Wei D. Yuan

Applicant(s)

TOMAZIC, GERD

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/20/04.
2. ☒ The allowed claim(s) is/are 1-3,6-8,10-13,15-17,19 and 22-31.
3. ☒ The drawings filed on 29 October 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

**RECOMBINATOR FOR THE RE-ACIDIFICATION OF AN ELECTROLYTE STREAM
IN A FLOWING ELECTROLYTE ZINC-BROMINE BATTERY**

Examiner: Yuan S.N. 10/053,341 Art Unit: 1745 October 27, 2004

Detailed Action

1. The Applicant's amendment filed on August 20, 2004 was received. The specification was amended. Claims 4,5,9,14,18,20,21 were cancelled. Claims 1,6,7,15,19,22,25-27 were amended. Claims 28-31 were added.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on March 12, 2004.

Claim Rejections

3. The claim rejections under 35 U.S.C. 102(b) as anticipated by Putt on claims 1-3,10,14,17-20,25 are withdrawn because the independent claims 1,19 have been amended. The claim rejections under 35 U.S.C. 103(a) as obvious over Putt, Grimes and Firatli et al. on claims 4-6,11-13,26,27 are withdrawn because the independent claims 1,19 have been amended.

Reasons for Allowance

4. Claims 1-3,6-8,10-13,15-17,19,22-31 are allowed. The invention of independent claim 1 recites a recombinator device for the re-acidification of an electrolyte stream in a flowing electrolyte zinc-bromine battery comprising a housing, means for receiving hydrogen from the zinc-bromine battery, means for receiving bromine from the zinc-bromine battery, means for

controlling the temperature within the reaction chamber, means for reacting the hydrogen and bromine together so as to form hydrobromic acid, means for distributing the hydrobromic acid into at least one of an electrolyte stream or electrolyte reservoir of the zinc-bromine battery and means for facilitating the reaction of hydrogen and bromine within the reaction chamber, said reaction facilitating means comprising a catalyst. The closest prior arts of records, Putt and Grimes, do not disclose or suggest the use of means for controlling the temperature within the reaction chamber as stated in the claim. The invention of independent claim 7 recites a recombinator device for the re-acidification of an electrolyte stream in a flowing electrolyte zinc-bromine battery comprising a housing, means for receiving hydrogen from the zinc-bromine battery, means for receiving bromine from the zinc-bromine battery, means for controlling the temperature within the reaction chamber, means for reacting the hydrogen and bromine together so as to form hydrobromic acid, means for distributing the hydrobromic acid into at least one of an electrolyte stream or electrolyte reservoir of the zinc-bromine battery, wherein the reaction facilitating means comprises means for controlling temperature within the reaction chamber. The closest prior arts of records, Putt and Grimes, do not disclose or suggest the use of means for controlling the temperature within the reaction chamber as stated in the claim. The invention of independent claim 15 recites a recombinator device for the re-acidification of an electrolyte stream in a flowing electrolyte zinc-bromine battery comprising a housing, means for receiving hydrogen from the zinc-bromine battery, means for receiving bromine from the zinc-bromine battery, means for controlling the temperature within the reaction chamber, means for reacting the hydrogen and bromine together so as to form hydrobromic acid, means for distributing the

hydrobromic acid into at least one of an electrolyte stream or electrolyte reservoir of the zinc-bromine battery and means for controlling delivery of bromine into the reaction chamber, wherein the delivery control means comprises a capillary operatively associated with the bromine receiving means. The closest prior arts of records, Putt and Grimes, do not disclose or suggest the control means comprises a capillary operatively associated with the bromine receiving means as stated in the claim. The invention of independent claim 19 recites a method for re-acidifying an electrolyte in a flowing electrolyte zinc-bromine battery, comprising the steps of: introducing an electrolyte stream from the zinc-bromide battery into a reaction chamber, reacting the bromine with the hydrogen to create a reaction product; and reintegrating the reaction product with at least one of an electrolyte stream or an electrolyte reservoir of the zinc-bromine battery, wherein the step of introducing further includes the step of controlling the rate of bromine and hydrogen introduced into the reaction chamber, and wherein the step of controlling comprises the step of allowing one to two drops of the hydrogen and bromine electrolyte stream per minute. The closest prior arts of records, Putt and Grimes, do not disclose or suggest the flow of hydrogen and bromine streams at one to two drops per minute as stated in the claim. The invention of independent claim 22 recites a method for re-acidifying an electrolyte in a flowing electrolyte zinc-bromine battery, comprising the steps of: introducing an electrolyte stream from the zinc-bromide battery into a reaction chamber, reacting the bromine with the hydrogen to create a reaction product; and reintegrating the reaction product with at least one of an electrolyte stream or an electrolyte reservoir of the zinc-bromine battery, and regulating the temperature of the housing and the temperature within the reaction chamber. The

closest prior arts of records, Putt and Grimes, do not disclose or suggest the step of regulating the temperature of the housing and the temperature within the reaction chamber as stated in the claim.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan
October 27, 2004

